

**SOLID CAUSTIC SODA**

REVISION DATE: 9/19/2022

1. - PRODUCT AND COMPANY IDENTIFICATION**Product name:** Sodium Hydroxide, Solid.**Internal Code of product identification:** 126.35.2.**Company name:** USIQUÍMICA DO BRASIL LTDA.**Address:** Rua da Lagoa, 431 - Cumbica - Guarulhos - SP.**Company Phone:** + 5511 3821-7000 (PBX system) - + 5511 2481-3355.**Emergency phone:** SUATRANS - COTEC - Environmental Emergency.

, (0800) 0111-767 - (0800) 7071-767 - 24 HOURS.

193 – Firefighters.

Main recommended uses for the substance: Paper, cardboard, soap, detergents, adhesives, beverages, food, pharmaceuticals, oils and fats, ceramics, rubber, tanning, electroplating, laundries, mining, sugar mills, water treatment, aluminum industry, cellulosic films, degreasers industries and chemical industry in general.**2. - HAZARDS IDENTIFICATION****Classification of Substance**

Corrosive to metals, Category 1,

Corrosive to the skin, Category 1A

Serious eye injuries, Category 1

Hazardous to the aquatic environment - Acute. Category 3

Toxicity to specific target organs - Single Exposure - Category 1

GHS label elements, including precautionary phrases:

LABEL ELEMENTS	DATA
Product identification and supplier emergency telephone number	Commercial Name: Sodium Hydroxide, Solid. Synonym: Caustic soda (NaOH), sodium hydrate. Emergency phone: SUATRANS - COTEC - Environmental Emergency. DDG (0800) 0111-767 - (0800) 7071-767 - 24 HOURS.
Pictographs	
Warning words	DANGER
Danger phrases	H290 - May be corrosive to metals. H314 - Causes severe skin burns and eye damage. H402 - Harmful to aquatic organisms. H318 - Causes serious eye damage. H370 - Causes damage to the organs of the respiratory system.
Caution Phrases (Prevention)	P260- Do not inhale dust/fume/gas/mist/vapors/spray. P264 - Wash skin thoroughly after handling. P280 - Use protective gloves/protective clothing/eye protection/face protection.
Precautionary phrases (Emergency response)	P303 + P361 + P353- IN CASE OF SKIN CONTACT (or with the hair): Remove immediately all contaminated clothing. Wash the skin with water/take a shower. P304+P340+P310 - IN CASE OF INHALATION: Remove the person to a ventilated area and keep the person in a rest position that does not make it difficult to breathe. Contact a TOXICOLOGICAL INFORMATION CENTER or physician immediately. P305+P351+P338+P310 - IN CASE OF EYE CONTACT: Rinse thoroughly with water for several minutes. If contact lenses are used, remove them if it is easy. Continue rinsing. Contact a TOXICOLOGICAL INFORMATION CENTER or physician immediately. P308 + P311- IN CASE OF exposure or suspected exposure: Contact a TOXICOLOGICAL INFORMATION CENTER/doctor.

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	P361 + P364- Remove at once all contaminated clothing and wash it before using it again.
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Other hazards which do not result in classification: Not known**3.- COMPOSITION AND INFORMATION ON THE INGREDIENTS****Substance:** NaOH (sodium hydroxide), solid.**Chemical or common name:** solid caustic soda. **Synonym:**Caustic soda (NaOH), sodium hydrate. **Composition:**Caustic soda, minimum 97% (mass/mass). **CAS****Registration No.:** 1310-73-2.**Impurities that contribute to the danger:** Not applicable.**4 - FIRST AID MEASURES****First aid measures****Inhalation:** Remove the victim to fresh air and keep at rest in a position comfortable for breathing. Contact a TOXICOLOGICAL INFORMATION CENTER or physician. Take this MSDS.**Skin contact:** IN CASE OF SKIN CONTACT (or the hair): Remove immediately all contaminated clothing. Wash the skin with water/take a shower. Contact a TOXICOLOGICAL INFORMATION CENTER or physician. Take this MSDS.**Eye contact:** Rinse thoroughly with water for several minutes. If contact lenses are used, remove them if it is easy. Continue rinsing. Contact a TOXICOLOGICAL INFORMATION CENTER or physician immediately. Take this MSDS.**Ingestion:** Corrosive product. If ingested, do not induce vomiting. Dilute immediately, providing the victim with large amounts of water. If vomiting occurs spontaneously, provide additional water and keep the victim in an airy place. Contact a TOXICOLOGICAL INFORMATION CENTER or physician immediately. Take this MSDS.**Most important symptoms and effects, acute or late:**

Toxic if ingested. May cause perforations in the tissues of the mouth, throat, esophagus and stomach. Harmful in contact with skin. Causes severe skin burns with potential for tissue destruction. Causes serious eye damage with pain, tearing and can lead to blindness. May cause itching and dermatitis. It can cause coughing and even chemical pneumonia.

Notes to the physician:

Avoid contact with the product to help the victim. If necessary, symptomatic treatment should include, above all, supportive measures such as correction of hydroelectrolytic, metabolic disorders, as well as respiratory assistance. In case of contact with the skin and/or eyes, do not rub the affected parts.

5. - FIREFIGHTING MEASURES**Suitable extinguishing measures:** Compatible with CO₂ or dry chemical powder.**Not recommended:** Direct water jets.**Specific hazards:** Combustion of the chemical product or its packaging may form irritating and toxic gases.**Firefighting team protection measures:** Special protective equipment for personnel assigned to fight fires. Do not stay in the danger zone without self-contained breathing apparatus suitable for breathing independently of the environment. To avoid skin contact, maintain a safe distance and wear suitable protective clothing. Refresh closed containers exposed to fire with water spray. Suppress (shoot down) with water jets (fog) gases, vapors and mists. Avoiding contamination of surface water and groundwater with fire fighting water.**6. - CONTROL MEASURES FOR SPILLING OR LEAKING****Personal precautions for the staff that is not part of the emergency services:****For staff that is not part of the emergency services:** Isolate leak and ignition sources preventively. Do not smoke. Do not touch damaged containers or spilled material unless wearing appropriate clothing. Use personal protective equipment as described in section 8.**For staff of the emergency department:** Wear full PPE, splash goggles, suitable protective gloves, PVC or rubber apron, anti-acid protective clothing (PVC or other equivalent material), rubber or PVC boots and under normal conditions, there is no need, but in special situations, wear a mask

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(semifacial) with filter against vapors or mists, full face mask with air line, or even, self-contained set of breathable air.

Precautions to the environment: Prevent the spilled product from reaching water courses and sewers.

Methods and materials for containment and cleaning: Neutralize spilled product with dilute acid or dilute with plenty of water. Absorb the product with earth, dry sand or other non-combustible material to avoid material damage. Place adsorbed material in appropriate containers and remove to a safe place. Dispose of the adsorbent material used in the spill in a suitable landfill. For final disposal, proceed according to section 13 of this MSDS.

Disposal: Waste must be disposed of in accordance with current Environmental Legislation. Keep chemicals in their original containers. Do not mix with other waste. Handling dirty containers must be carried out in the same way as the product itself. An MSDS of the generated waste must be generated.

Differences in the action of large and small leaks: There is no distinction between the actions of large and small leaks for this product.

7. -HANDLING AND STORAGE**Handling:**

Technical measures Handle in a ventilated area or with a general ventilation/local exhaust system. Avoid formation of vapors or mists. Avoid inhaling the product if vapors or mists are formed. Avoid contact with incompatible materials. Wear protective gloves, protective clothing, eye protection and/or face protection as indicated in Section 8.

Prevention of worker's exposure: Avoiding the formation of vapors/aerosols. Working with exhaust / chimney. Do not inhale the substance/mixture. Using specific PPE's - splash goggles, face shield, PVC gloves and protective clothing. Avoid inhaling vapors.

Wash after handling and decontaminate PPE's after use. PPE's must be approved for use only with the respective CAs – Certificates of Approval.

Wash hands and face thoroughly after handling and before eating, drinking, smoking or using the bathroom. Contaminated clothing must be exchanged and washed before use. Remove contaminated clothing and protective equipment before entering eating areas.

Precautions and guidelines for safe handling: Use personal protective equipment (PPE) to avoid direct contact with the product. Handling the product in a well-ventilated place. Forms a slippery layer with water.

Storage:

Appropriate: Caustic soda in flakes must be stacked on pallets with a maximum of 10 bags, in a covered area and with a moisture-free floor. Store in a well-ventilated place away from sunlight. Keep the container closed. It is not necessary to add stabilizers and antioxidants to ensure product durability. May react dangerously with some incompatible materials as outlined in Section 10.

To avoid: Avoid extreme heat. Moisture.

Hygiene measures:

Appropriate: Always sanitize your hands before handling any food, as there is a risk of food contamination. Contaminated clothing must be washed and sanitized before use. Always keep gloves free from moisture and decontaminated.

Inappropriate: Direct contact with the product and/or its residues.

Technical measures

Suitable conditions: Keep containers closed and in a well-ventilated place. Keep containers away from heat and direct sunlight. Avoid extreme temperatures. Avoid moisture.

Safe materials for packaging:

Recommendations: 25 kg polyethylene bags.

Not recommended: Paper, cardboard, metals and the like.

8. - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters.

Occupational exposure limits

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Chemical or common name: Sodium hydroxide.

TLV-C(ACGIH, 2012)

2 mg/m³ - C:Ceiling.**Biological indicators:**

Not established.

Measures of engineering control:

Provide mechanical ventilation and direct exhaust system to the outside environment. These measures help to reduce exposure to the product. It is recommended to make emergency showers and eye washes available in the work area. Keep concentrations of the substance or mixture in air below stated occupational exposure limits.

Personal protection measures:**Protection for the eyes/face:**

Splash goggles.

Protection of the skin and body:

Suitable protective gloves, PVC or rubber apron, anti-acid protective clothing (PVC or other equivalent material) and rubber or PVC boots.

Respiratory protection:

Under normal conditions, there is no need, but in special situations, to use a mask (semi-facial) with a filter against vapors or mists, a full face mask with an air line, or even a self-contained breathing air set.

Thermal hazards:

Wear personal protection when handling the heated substance and follow the procedures for work and breaks in hot environments.

9. - PHYSICAL AND CHEMICAL PROPERTIES**Aspect (physical state, shape and color):** Solid in the form of white scales or pearls.**Odor and odor limit:** Odorless.**pH :** 12,7 (solution 0.1M).**Melting point / freezing point:** 318 °C.**Boiling point, initial and boiling temperature range:** 1390 °C*.**Flash point:** Not available.**Evaporation rate:** Not available.**Flammability (solid, gas):** Not flammable.**- Lower/upper flammability or explosiveness limit:** Not flammable.**Vapor pressure:** 42 mmHg at 1000 °C*.**Vapor Density:** Not available.**Relative Density** Not available.**Solubility:** 1090 g/L. Very soluble in water.**Partition coefficient n-octanol / water:** Not available.**Auto-ignition temperature:** Not available.**Decomposition temperature:** Not available.**Viscosity:** Not available.**Further information:** * Information regarding the 90-95% NaOH solution (mass/mass).**10. - STABILITY AND REACTIVITY****Specific conditions:****Stability and reactivity:** Stable product under normal conditions of temperature and pressure.

Possibility of hazardous reactions: Reacts violently with acids, aldehydes, metals and other organic products. Reacts with aluminum, zinc, tin and copper, causing corrosion and hydrogen generation, which can form explosive mixtures with air. Consider the existence of an exothermic reaction when diluted in water, alcohol and glycerol.

Conditions to avoid: High temperatures and contact with incompatible materials.**Materials or incompatible substances:** Aluminum, zinc, tin, copper acids, aldehydes, organics and water.**Hazardous decomposition products:** No hazardous decomposition products known.**11. - TOXICOLOGICAL INFORMATION****Information according to the different routes of exposure:**

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Acute toxicity: Toxic if ingested. Harmful in contact with skin. DL50 (oral, rat): 140 - 340 mg/kg DL50 (dermal, rabbits): 1350 mg/kg.

Skin corrosion/irritation: Causes severe skin burns with potential for tissue destruction.

Severe ocular lesions/eye irritation: Causes serious eye damage with pain, tearing and can lead to blindness.

Respiratory or skin sensitization: The product is not expected to have respiratory sensitization potential. May cause allergic skin reactions with itching and dermatitis. Germ cell mutagenicity: The product is not expected to show germ cell mutagenicity.

Carcinogenicity: The product is not expected to be carcinogenic.

Reproductive toxicity: The product is not expected to present reproductive toxicity. **Specific target organ toxicity- single exposure:** Ingestion of the product may cause perforations in the tissues of the mouth, throat, esophagus and stomach.

Specific target organ toxicity - repeated exposure: The product is not expected to present specific target organ toxicity by repeated or prolonged exposure.

Aspiration hazard: It can be harmful if ingested and can cause perforations in the tissues of the mouth, throat, esophagus and stomach, and harmful if it enters the airways and can cause coughing and even chemical pneumonia.

12. - ECOLOGICAL INFORMATION

- **Environmental effects, behaviors and impacts of the product: Ecotoxicity.**

Harmful to aquatic organisms. EC50 (Ceriodaphnia dubia, 48h): 40.4 mg/L.

Persistence and degradability:

Due to the lack of data, it is expected that the product will show persistence and not be quickly degraded.

Bioaccumulative potential: Bioaccumulative potential in aquatic organisms is not expected.

Mobility in soil.

Not determined.

Other adverse effects:

Caustic soda is harmful to aquatic life by increasing the pH. Most aquatic species do not tolerate pH in the range of 12 to 14 regardless of weather. This increase in pH can also cause the release of metal salts, such as aluminum, which can also contribute to exposed toxicity.

13. - CONSIDERATIONS ON FINAL DISPOSAL

Recommended methods for final disposal:

The treatment and disposal of product residues must be done in a suitable environment, by people trained in the use of special equipment and the recommended PPE's to avoid contact with the product, its vapors or mists. Leaks must be contained and collected for later disposal after neutralization.

Product:

Ensure all Federal, State and local agencies receive proper notice of spills and disposal methods. CONAMA Resolution 005/1993, Law No. 12,305, as of August 2, 2010 (National Solid Waste Policy).

Product waste:

Consult environmental regulatory agencies for advice on acceptable regulatory practices. Come in contact with relevant local authorities. It can be incinerated when in compliance with local regulations. Or dispose of in an approved chemical waste landfill.

Used Package:

Empty containers must be drained and covered before handling and transport operations. If the package is not properly washed and decontaminated, it is considered to contain the product.

14. - TRANSPORT INFORMATION

National and International Regulations

Land:

Resolution No. 5947/2021 of the Brazilian National Land Transport Agency (ANTT), Approves the Complementary Instructions to the Regulation of Land Transport of Dangerous Goods and its amendments.

UN number: 1823

Appropriate name for shipment: SODIUM HYDROXIDE, SOLID

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Risk class: 8
Risk subclass: -
Risk number: 80
Packing group: II

Waterway:

DPC - Directorate of Ports and Coasts (Transport in Brazilian waters) Maritime Authority Rules (NORMAM)
NORMAM 01/DPC: Vessels Used in Open-seas Navigation

UN number: 1823

Appropriate name for shipment: SODIUM HYDROXIDE, SOLID

Risk class: 8

Risk subclass: -

Risk number: 80

Packing group: II

EmS: F-A, S-B

- Air Transport:

ANAC - National Civil Aviation Agency - Resolution No. 129 as of January 8, 2009

RBAC N°175 - (BRAZILIAN CIVIL AVIATION REGULATION) - TRANSPORTATION OF DANGEROUS ITEMS IN CIVIL AIRCRAFT

IS No. 175-001 - SUPPLEMENTARY INSTRUCTION - IS

ICAO - "International Civil Aviation Organization" - Doc 9284-NA/905

IATA - "International Air Transport Association"

Dangerous Goods Regulation (DGR)

UN number: 1823

Appropriate name for shipment: SODIUM HYDROXIDE, SOLID

Risk class: 8

Risk subclass: -

Risk number: 80

Packing group: II

The product is not considered a marine pollutant. The extreme pH of the product can cause changes in environmental compartments causing damage to organisms.

15. – REGULATORY INFORMATION

Specific regulations for the chemical product:

Federal Decree No. 2,657, as of July 3, 1998;

Standard ABNT-NBR 14725:2014;

Ordinance No. 229, as of May 24, 2011 – Changes Regulatory Standard No. 26.

16. - OTHER INFORMATION

The information on this sheet corresponds to the current state of our knowledge and experience of the product and is not exhaustive. It applies to the product under the conditions specified, unless otherwise stated. In case of combinations or mixtures, make sure that no new danger can appear. This information does not, in any case, exempt the user of the product from complying with all legislative, regulatory and administrative texts relating to the product, safety, hygiene and protection of human and environmental health.

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